ESO 2546

# Regional Shifts of Livestock Within the U.S. During the 20th Century

by

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## Overview:

Throughout the 20th Century, an ongoing topic of discussion and debate has been shifts in the production of farm commodities within the U.S. As the 20th Century draws to a close, this paper discusses the regional shifts that have occurred in the inventory numbers of eight livestock species during the Century, as well as changes in the number of livestock in inventory. Data were taken from the 1900, 1950, and 1997 U.S. Censuses of Agriculture. The shifts were evaluated using the ten production regions classified by the U.S. Department of Agriculture. These regions cover the 48 contiguous states. Each region is comprised of states that are somewhat homogeneous in terms of physical characteristics and types of farming.

## Table of Contents

# Figure 1. Regional Shares of Beef Cattle Inventory, U.S., 1900, 1950, and 1997*.

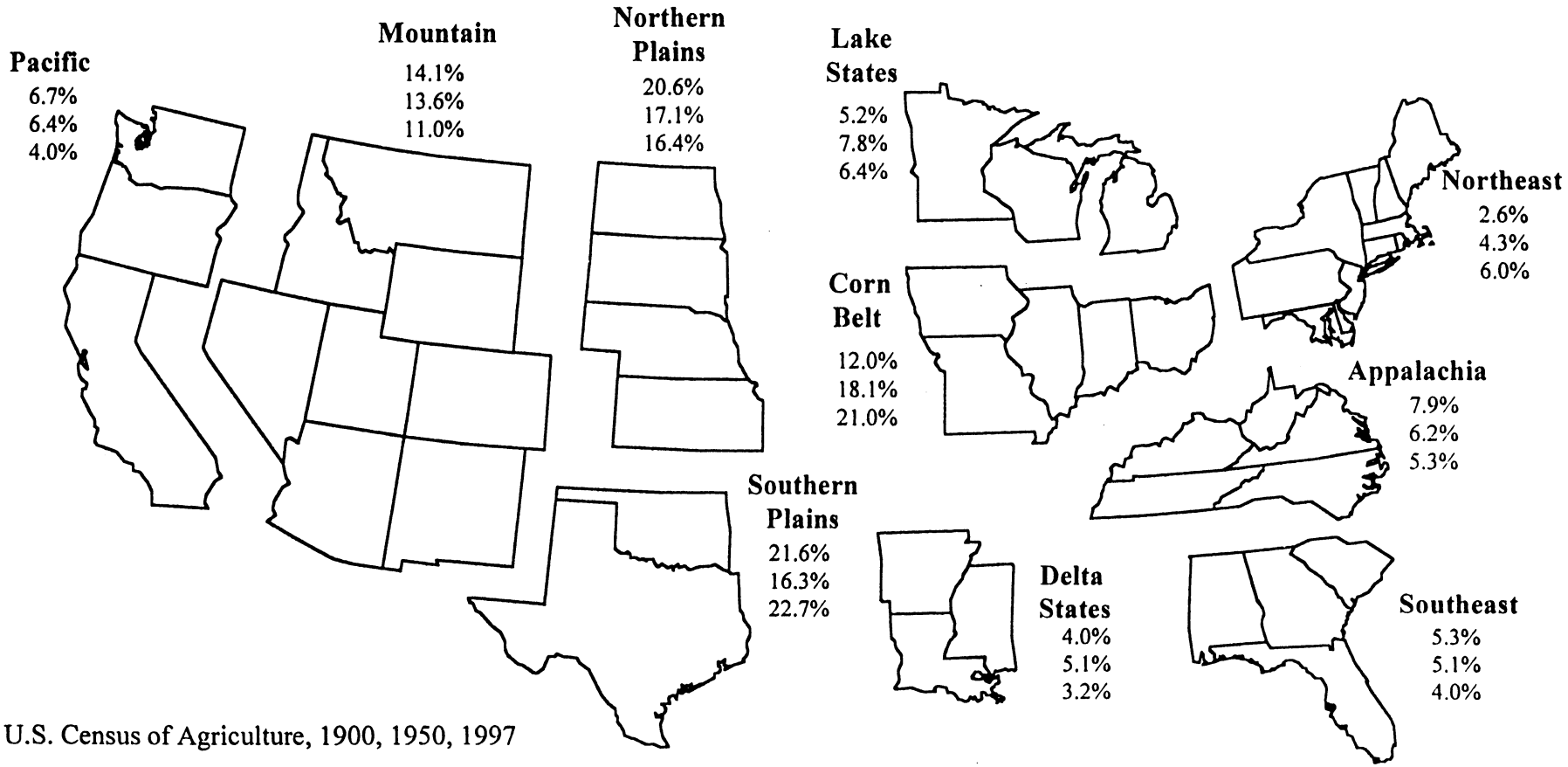
Total cattle inventories minus the dairy cow inventory (essentially, beef cattle) increased from 51 million in 1900 to 90 million in 1997. Changes in regional shares between 1900 and 1997 were generally small, with the largest change being a decline in the Corn Belt's share from 21% in 1900 to 12% in 1997. Shares of the other nine regions during the 20th Century increased on average by 1%.

| Order of Data |
|---|
| % U.S. Inventory, 1997 |
| % U.S. Inventory, 1950 |
| % U.S. Inventory, 1900 |

| U.S. Inventory | |
|---|---|
| 1997 | 90 mil. head |
| 1950 | 56 mil. head |
| 1900 | 51 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| 1997 | 57% |
| 1950 | 50% |
| 1900 | 62% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 2. Regional Shares of Chicken Inventory, U.S., 1900, 1950, and 1997*.

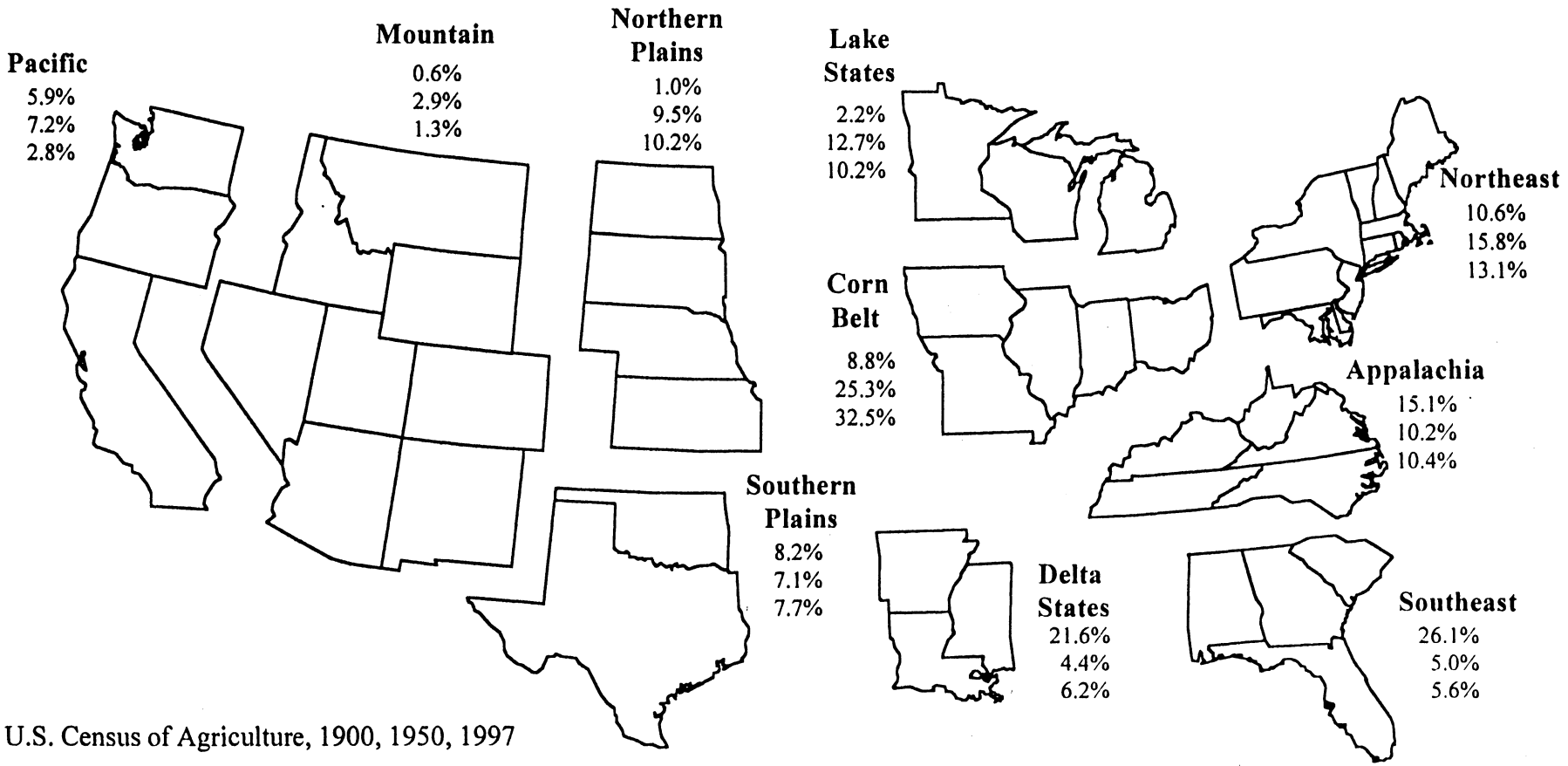
The chicken inventory numbers include both layers and broilers. Location of the chicken inventory shifted prominently during the 20th Century. Combined share of U.S. inventories located in the Corn Belt, Northern Plains, and Lake States decreased from 53% in 1900 to 12% in 1997, or by 41 percentage points. In contrast, the share in the Southeast and Delta States increased from 12% in 1900 to 48% in 1997, or by 36 percentage points. Most of these changes occurred after 1950.

| Order of Data |
|---|
| % U.S. Inventory, 1997 |
| % U.S. Inventory, 1950 |
| % U.S. Inventory, 1900 |

| U.S. Inventory | |
|---|---|
| 1997 | 1.5 bil. birds |
| 1950 | 0.3 bil. birds |
| 1900 | 0.2 bil. birds |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| 1997 | 67% |
| 1950 | 48% |
| 1900 | 53% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 3. Regional Shares of Dairy Cattle Inventory, U.S., 1900, 1950, and 1997*.

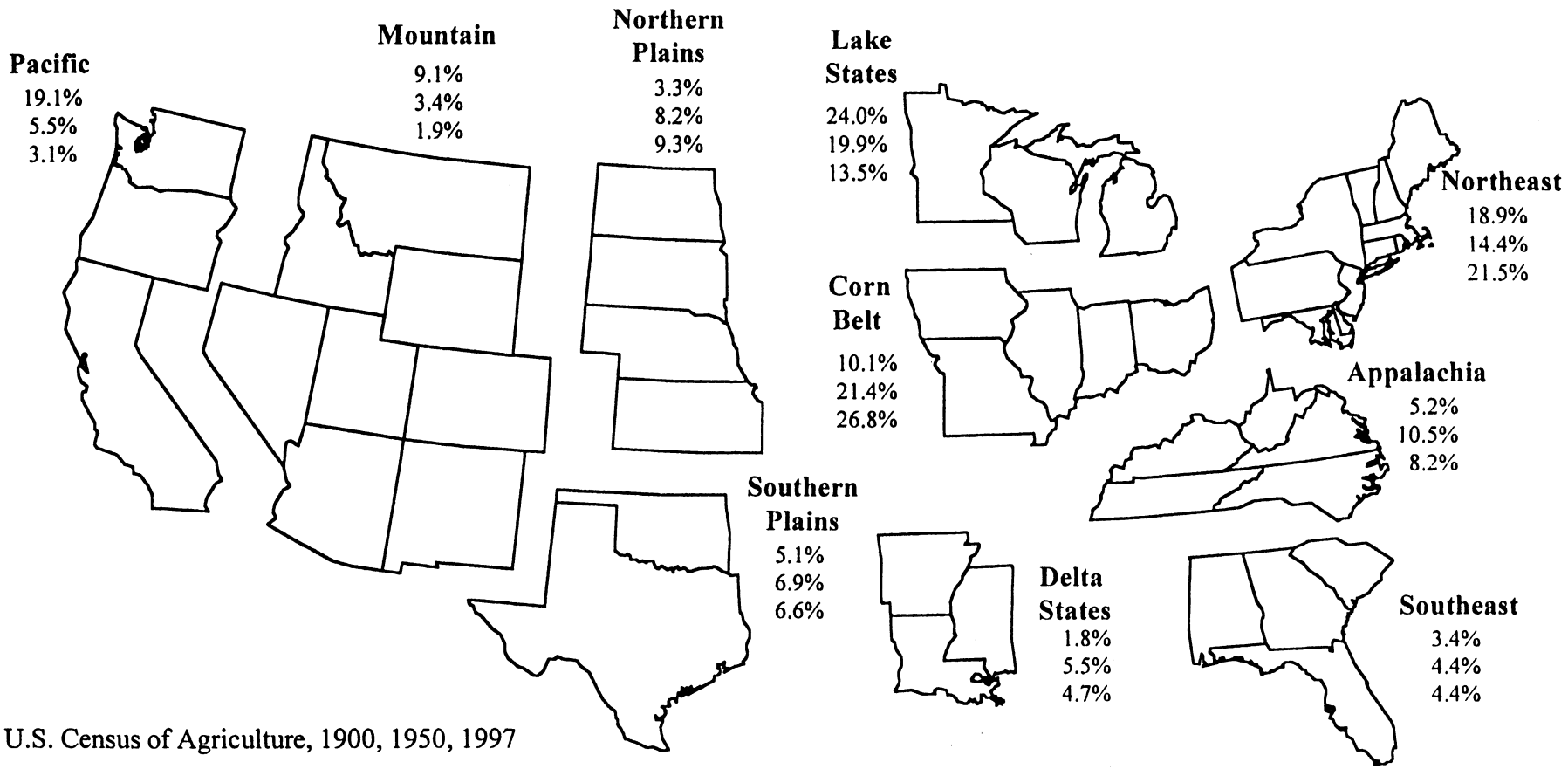
Number of dairy cows in the U.S. decreased from 17 million in 1900 to 9 million in 1997. The Lake States and the Northeast were among the top three regions in both 1900 and 1997, while the Pacific region replaced the Corn Belt among the top three regions. The Corn Belt's share of U.S. dairy cattle declined from 27% in 1900 to 10% in 1997, with most of the decline occurring after 1950. Besides the Pacific region, share of national inventory increased only in the Lake States and Mountain regions.

| Order of Data |
|---|
| % U.S. Inventory, **1997** |
| % U.S. Inventory, **1950** |
| % U.S. Inventory, **1900** |

| U.S. Inventory | |
|---|---|
| **1997** | 9 mil. head |
| **1950** | 21 mil. head |
| **1900** | 17 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| **1997** | 64% |
| **1950** | 52% |
| **1900** | 64% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 4. Regional Shares of Goat Inventory, U.S., 1900 and 1997*.

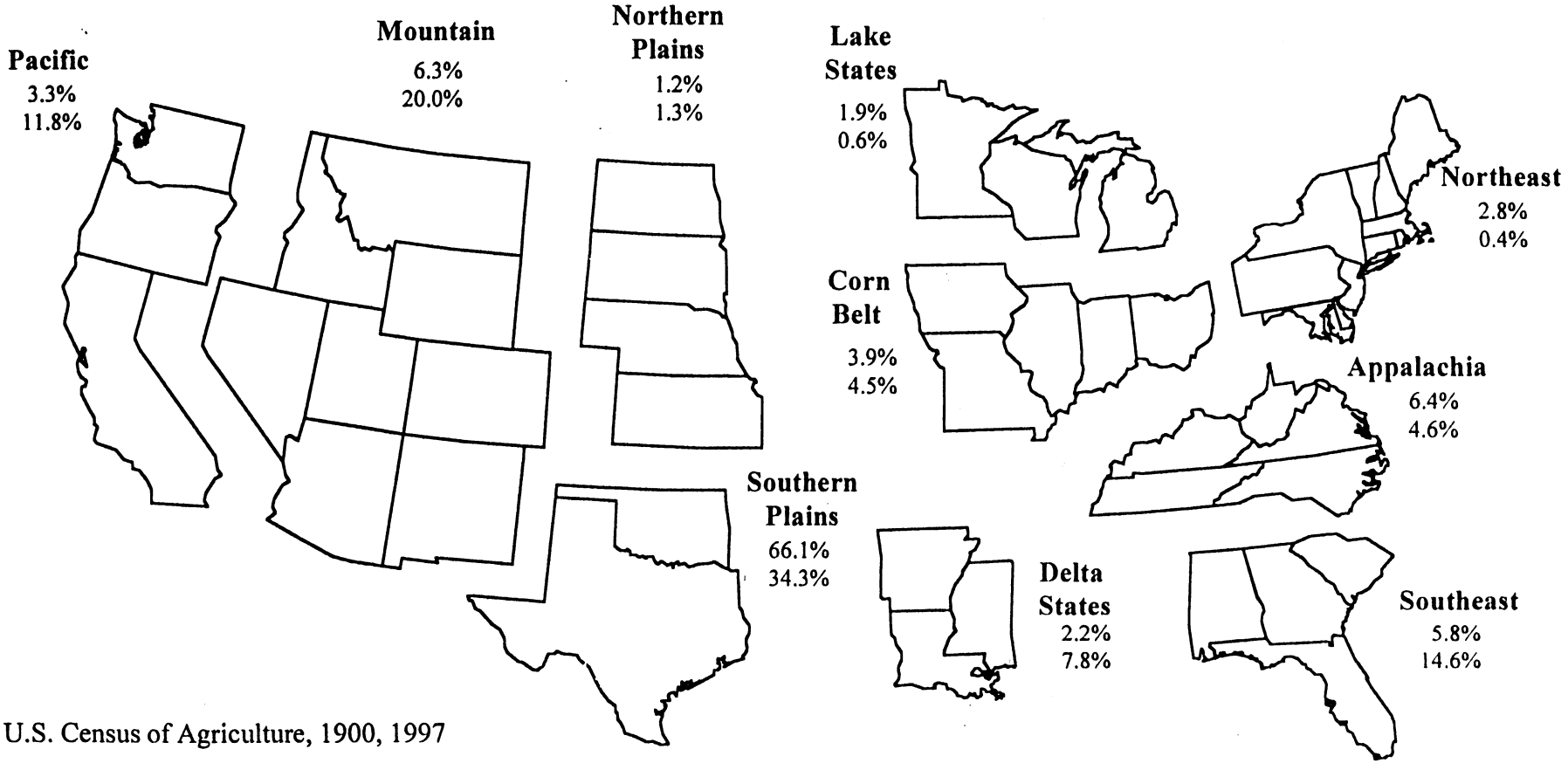
Goat inventory numbers are evaluated only for 1900 and 1997 due to non-collection of information in some key states during the 1950 Census. The inventory of goats declined by nearly 50%: from 1.9 million in 1900 to 1.0 million in 1997. The Southern Plains region had the largest share of goats in 1900, 34% of the U.S. inventory. It's share doubled to 66% by 1997. In 1997, no other region accounted for more than Appalachia's 6.4% share of the U.S. goat inventory.

| **Order of Data** |
|---|
| % U.S. Inventory, **1997** |
| % U.S. Inventory, **1900** |

| **U.S. Inventory** | |
|---|---|
| **1997** | 1.0 mil. head |
| **1900** | 1.9 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| **1997** | 112% |
| **1900** | 82% |




* U.S. Census of Agriculture, 1900, 1997

# Figure 5. Regional Shares of U.S. Hog Inventory, U.S., 1900, 1950, and 1997*.

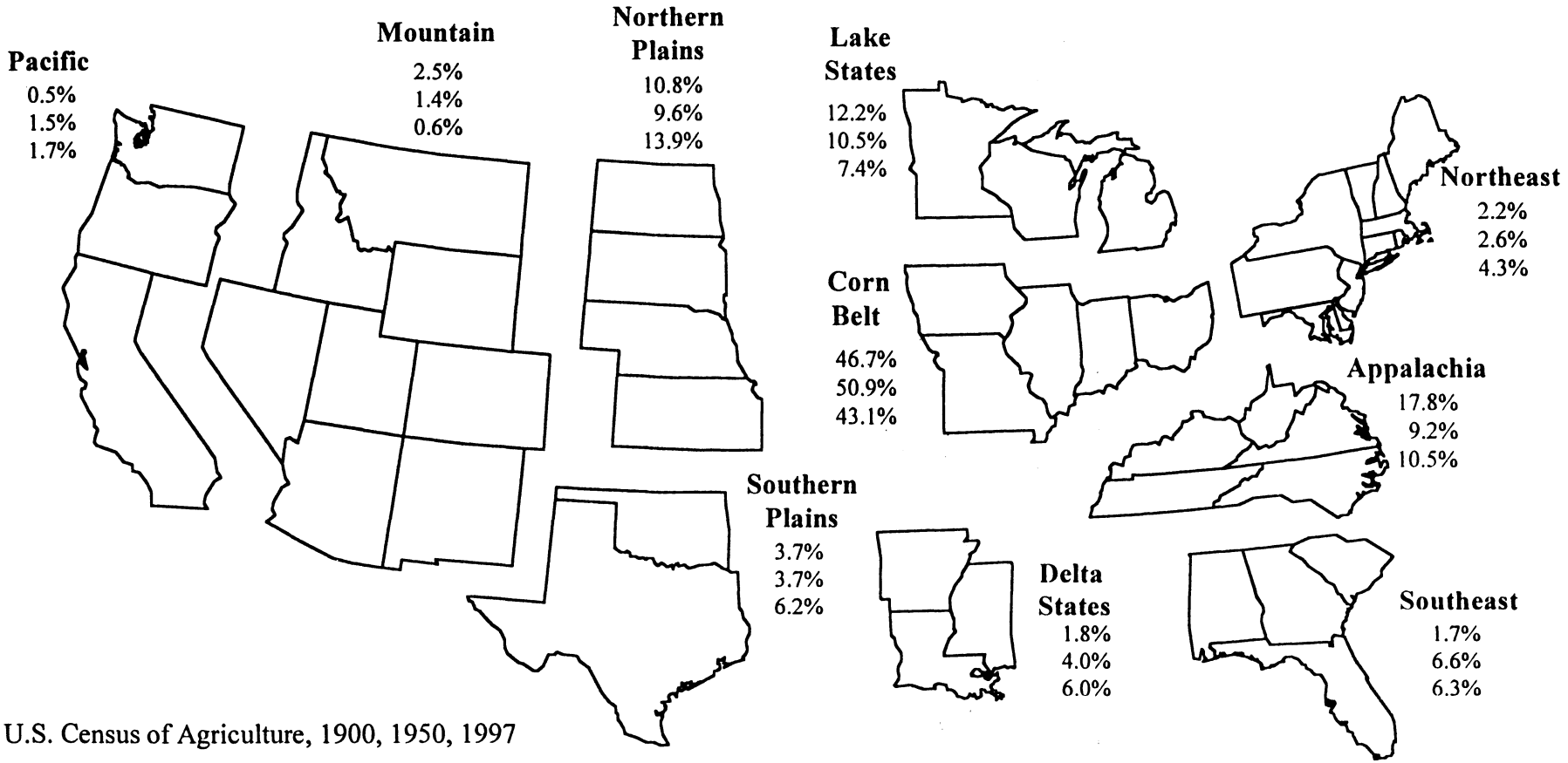
Number of hogs was almost the same in 1997 (61 million) as in 1900 (63 million). The Corn Belt remains the dominant region, accounting for 47% of hogs in 1997. Changes in regional shares between 1900 and 1997 were generally small. However, when combined, the six regions that had the smallest share of hogs in 1900 (Southeast, Southern Plains, Delta States, Northeast, Pacific and Mountain) had a much smaller share in 1997, 25% vs. 12%. Thus, hog production became more geographically concentrated during the 20th Century. Among individual states, North Carolina's share of the U.S. hog inventory increased from 2% in 1900 and 1950 to 16% in 1997.

| Order of Data |
|---|
| % U.S. Inventory, **1997** |
| % U.S. Inventory, **1950** |
| % U.S. Inventory, **1900** |

| U.S. Inventory | |
|---|---|
| **1997** | 61 mil. head |
| **1950** | 56 mil. head |
| **1900** | 63 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| **1997** | 95% |
| **1950** | 83% |
| **1900** | 75% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 6. Regional Shares of Horse and Mule Inventory, U.S., 1900, 1950, and 1997*.

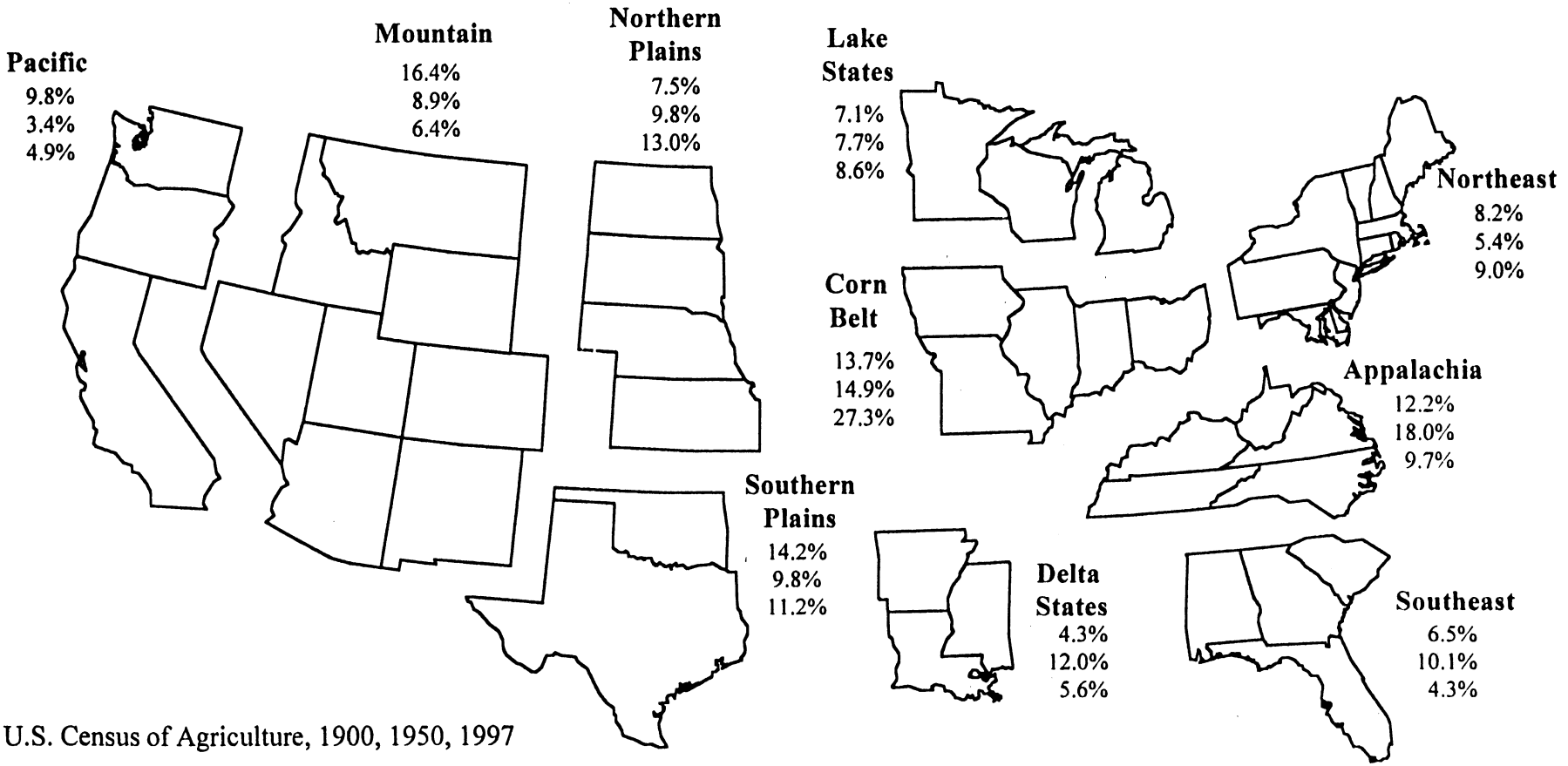
Number of horses and mules on farms declined substantially during the 20th Century (from 22 million in 1900 to 3 million in 1997), as mechanical power replaced animal power. The slower adoption of mechanical power in the South is illustrated by the Southeast, Delta, and Appalachian regions comprising 40% of the horse and mule inventory in 1950 compared with 20% in 1900 and 23% in 1997. The largest increase in share of inventory occurred in the Mountain region, probably reflecting the growth of ranching in this relatively unsettled area at the beginning of the 20th Century.

| Order of Data |
|---|
| % U.S. Inventory, 1997 |
| % U.S. Inventory, 1950 |
| % U.S. Inventory, 1900 |

| U.S. Inventory | |
|---|---|
| 1997 | 2.5 mil. head |
| 1950 | 7.6 mil. head |
| 1900 | 21.6 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| 1997 | 33% |
| 1950 | 30% |
| 1900 | 43% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 7. Regional Shares of Sheep Inventory, U.S., 1900, 1950, and 1997*.

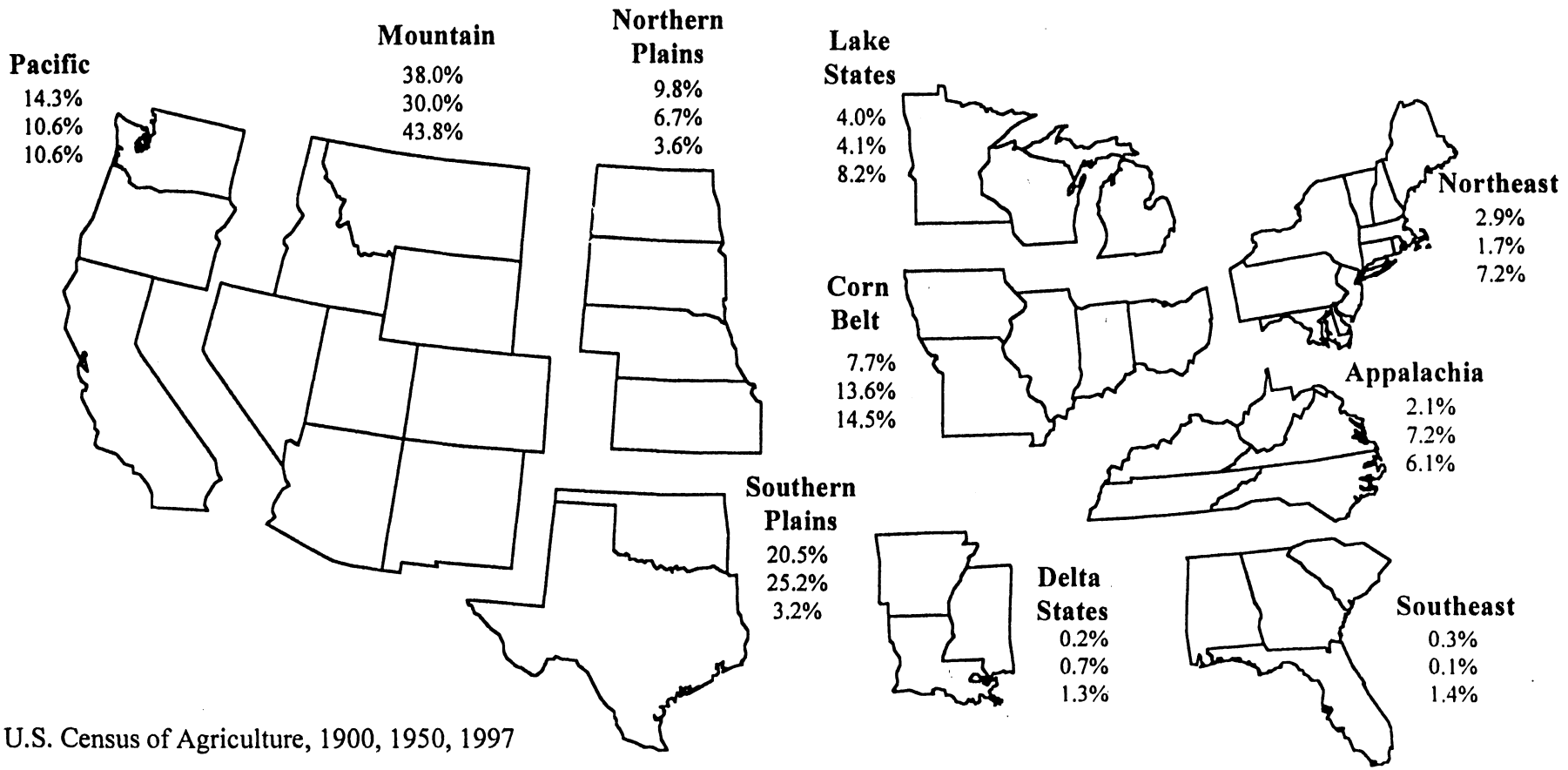
Number of sheep in inventory declined from 62 million in 1900 to 8 million in 1997. The major regional shift was from the eastern to western U.S. Share of U.S. sheep inventory located in the six eastern most regions declined from 39% in 1900 to 17% in 1997. On the other hand, share of inventory in the Southern Plains increased, from 3% in 1900 to 21% in 1997.

| Order of Data |
|---|
| % U.S. Inventory, 1997 |
| % U.S. Inventory, 1950 |
| % U.S. Inventory, 1900 |

| U.S. Inventory | |
|---|---|
| 1997 | 8 mil. head |
| 1950 | 31 mil. head |
| 1900 | 62 mil. head |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| 1997 | 86% |
| 1950 | 79% |
| 1900 | 78% |




* U.S. Census of Agriculture, 1900, 1950, 1997

# Figure 8. Regional Shares of Turkey Inventory, U.S., 1900, 1950, and 1997*.

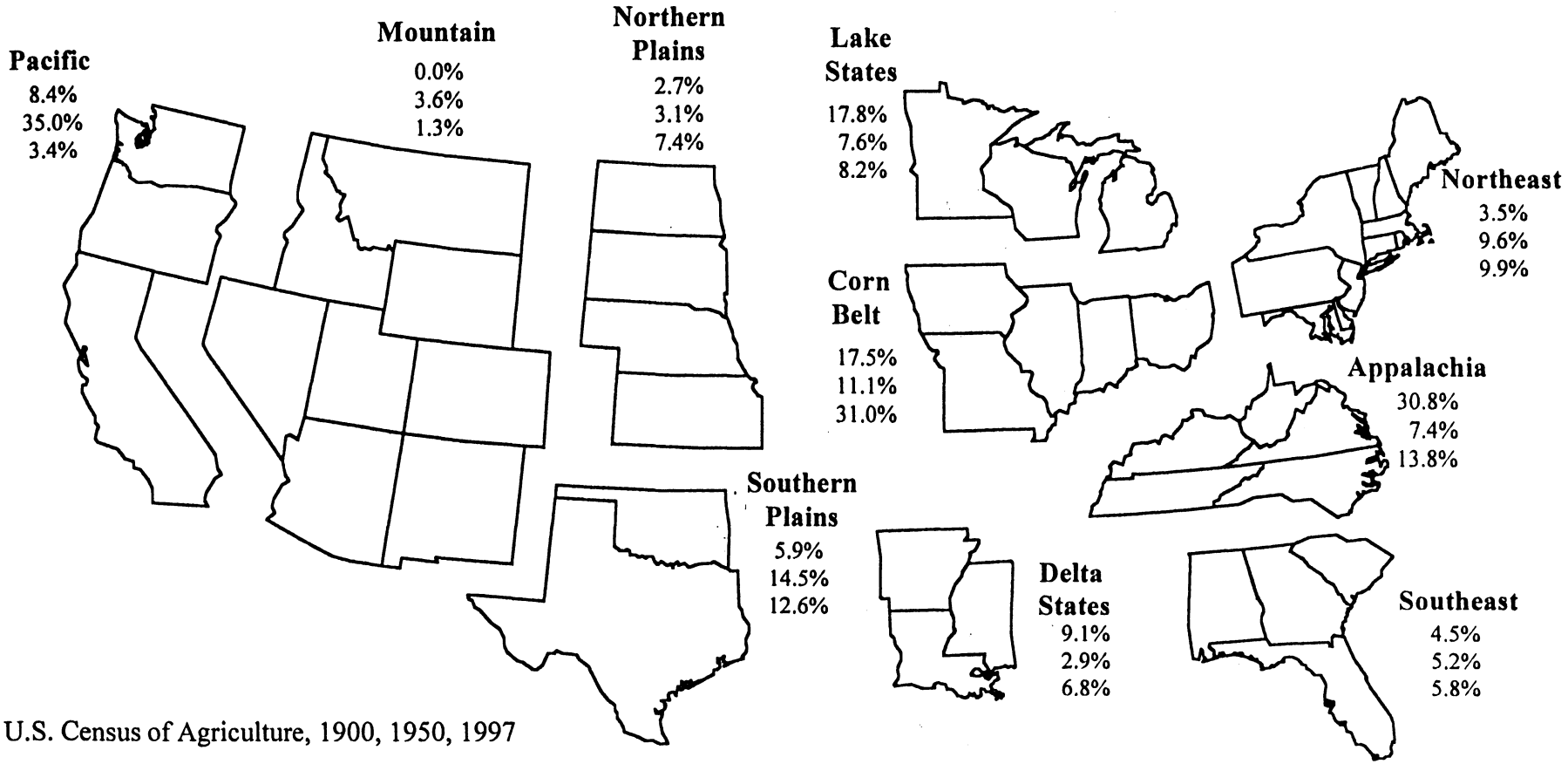
The inventory of turkeys has concentrated primarily in the Lake States and Appalachia, especially since 1950. These two regions accounted for 22% of the U.S. turkey inventory in 1900, 15% in 1950, and 49% in 1997. The largest decline occurred in the Corn Belt as its share decreased from 31% in 1900 to 18% in 1997. The Pacific region exhibited a rapid increase from a 3% share in 1900 to a 35% share in 1950, followed by a decline to an 8% share in 1997.

| Order of Data |
|---|
| % U.S. Inventory, 1997 |
| % U.S. Inventory, 1950 |
| % U.S. Inventory, 1900 |

| U.S. Inventory | |
|---|---|
| 1997 | 104 mil. birds |
| 1950 | 28 mil. birds |
| 1900 | 7 mil. birds |

**Measure of Regional Concentration:** This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

| | |
|---|---|
| 1997 | 72% |
| 1950 | 61% |
| 1900 | 55% |




* U.S. Census of Agriculture, 1900, 1950, 1997